



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/750,926 | 12/30/2003 | Chang Muk Lee | 2060-3-94 | 1875 |

7590 03/20/2006

JONATHAN Y. KANG, ESQ.
LEE, HONG, DEGERMAN, KANG & SCHMADEKA
14th Floor
801 S. Figueroa Street
Los Angeles, CA 90017-5554

| EXAMINER |
|----------|
|----------|

SHEDRICK, CHARLES TERRELL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2687

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/750,926 | LEE, CHANG MUK | |
| | Examiner | Art Unit | |
| | Charles Shedrick | 2687 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 12/27/05 have been fully considered but they are not persuasive. Regarding claims 1,8, and 16 Applicant argues that Chiang does not read up the claimed invention in particular to “reflecting electromagnetic waves in a direction opposite the head of the user”. However, the examiner respectfully disagrees. Chiang et al. teaches the application of directive antennas and also wherein the antenna array may be mounted at the bottom of the handset away from obstruction and absorption such as the human brain (Col. 6 lines 12-17). In the above mentioned teaching by Chiang et al. one of ordinary skill in the art could accomplish the claimed invention by the applicant. The Applicant claims “a second antenna that at least partially reflects electromagnetic waves emitted from the first antenna when the terminal is in use the electromagnetic waves reflected in a direction opposite to the head of a user”, however Chiang et al. teaches the above claimed invention and therefore the examiner maintains the rejection.

Response to Amendment

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1,3,8,9, and 11** are rejected under 35 U.S.C. 102(b) as being anticipated by **Chiang et al.**

US Patent # 6,876,331 B2.

Consider **claim 1** Chiang et al. clearly show and disclose a mobile communication terminal **100 (figure 1)** comprising: a first antenna **102 (figure 1)**; and a second antenna **104 (figure 1)** attached to the terminal in proximity to the first antenna such that the second antenna at least partially reflects electromagnetic waves emitted from the first antenna in a direction opposite to the head of the user (i.e., the antennas can be passive or directive) (**column 6 lines 12 –18, column 9 lines 3- 20, column 5 line 59 – column 6 line 5, column 7 lines 3-10**).

Consider **claims 3 and 9** and as **applied to claims 1 and 8**, Chiang et al. clearly show and disclose the terminal **100 (figure 1)** wherein the first antenna is a radiation-type antenna (**column 6 lines 49 –67**) and the second antenna is a reflection type antenna (**column 7 lines 3-10**).

Consider **claim 8**, Chiang et al. clearly show and disclose an antenna structure **104 (figure 1)**(i.e., the antennas can be passive or directive) for reducing the absorption of electromagnetic waves by the body of the user of a mobile communication terminal (**column 6 lines 12 –18, column 9 lines 3- 20**), the antenna structure comprising: a first antenna **102 (figure 1)**; and a second antenna (**figure 2**) that at least partially reflects electromagnetic waves emitted from the first antenna when the terminal is in use (**column 5 line 59 – column 6 line 5, column 7 lines 3-10**), the electromagnetic waves reflected in direction opposite to the head of the user (**column 6 lines 12 –18, column 9 lines 3- 20**).

Consider **claim 11** and as **applied to claim 8 above**, Chiang et al. clearly show and disclose the antenna structure of claim 8, wherein the second antenna is adapted to be in close proximity to the first antenna when the terminal is in use (**column 5 lines 59 –67 and figure 1**).

Claim Rejections - 35 USC § 103

Art Unit: 2687

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims **2,4,10, and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Bauregger et al. U.S. Patent Publication No.: 2003/0214443 A1**).

Consider **claims 2 and 10** and **as applied to claims 1 and 8 above**, Chiang clearly show and disclose the claimed invention except wherein the antenna has an inductive reactance.

However, in the same field of endeavor Bauregger et al. clearly show and disclose a antenna that has an inductive reactance (**paragraph 0034**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. to include and inductive reactance as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Consider **claims 4 and 13** and **as applied to claims 1 and 8 above**, Chiang et al. clearly show and disclose the claimed invention except wherein the antenna is a microstrip patch-type.

However, in the same field of endeavor Bauregger et al. clearly show and disclose a antenna that is a microstrip patch-type (**abstract, paragraph 0026, claim 9**)

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. to include a microstrip patch-type as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Claims 5, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Shiraki et al. U.S. Patent Pub No.: 2001/0024944**.

Consider **claims 5 and 14** and **as applied to claims 1 and 8 above**, Chiang et al. clearly disclose the claimed invention except wherein the second antenna has a length of at least $\lambda/2$.

However, in the same field of endeavor Shiraki et al. clearly show and disclose wherein the antenna has a length of at least $\lambda/2$ (**paragraphs 0006, 0033, and 0041**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. to a length of at least $\lambda/2$ as taught by Shiraki et al. for the purpose of improving the antenna efficiency.

Art Unit: 2687

Claims **6,7, 12,16 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Katagishi et al. US Pat. Pub No.: 2004/0063476 A1**

Consider **claim 6** and as applied to **claim 1**, Chiang et al. clearly disclose the claimed invention except wherein the terminal of claim 1, further comprising a foldable portion attached to a main body portion such that the terminal has an open configuration and a closed configuration.

However, in the same field of endeavor Katagishi et al. clearly show and disclose a terminal **2 (figure 1)**, comprising a foldable portion attached to a main body portion such that the terminal has an open configuration and a closed configuration (**abstract, 0014,0029, and 0038**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as taught by Katagishi in order to improve to the design and ergonomics of the mobile terminal.

Consider **claim 7** and as applied to **claim 6**, Chiang et al. clearly disclose the claimed invention except wherein the first antenna is attached at an upper surface of the main body portion and the second antenna is attached at a rear surface of the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration.

However, in the same field of endeavor Katagashi et al. clearly show and disclose wherein the first antenna is attached at an upper surface of the main body portion and the second antenna is attached at a rear surface of the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration (**0014,0029, 0038, 0041, and figure 8**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as taught by Katagishi et al. in order to improve to the design and ergonomics of the mobile terminal.

Consider **claim 12** and as applied to **claim 8**, Chiang et al. clearly discloses the claimed invention except wherein the antenna structure of claim 8, wherein the first antenna is adapted to be withdrawn from the terminal.

However in the same field of endeavor, Katagashi et al. clearly show and disclose the antenna structure wherein the antenna is adapted to be withdrawn from the terminal (**paragraphs 0032 and 0038**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as taught by Katagishi et al. order to improve to the design and ergonomics of the mobile terminal.

Consider **claim 16** Chiang et al. clearly show and disclose a mobile communication terminal **100** (**figure 1**) wherein the second antenna reflects electromagnetic waves emitted from the first antenna when the terminal is in use (**column 5 line 59 – column 6 line 5, column 7 lines 3-10**) and the electromagnetic waves reflected in direction opposite to the head of the user (**column 6 lines 12 –18, column 9 lines 3- 20**)

However, Chiang et al. does not clearly disclose a main body portion attached to a foldable portion such that the terminal has a closed configuration and an open configuration; a first antenna adapted to be withdrawn from the main body portion; and a second antenna

Art Unit: 2687

attached to the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration.

In the same field of endeavor, Katagishi et al. clearly show and disclose a main body portion attached to a foldable portion such that the terminal has a closed configuration and an open configuration (**paragraphs 0014,0029, 0038, 0041, and figure 8**); a first antenna adapted to be withdrawn from the main body portion **paragraphs 0032 and 0038**); and a second antenna attached to the foldable portion such that the second antenna is in close proximity to the first antenna when the terminal is in the open configuration **paragraphs 0014,0029, 0038, 0041, and figure 8**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the mobile terminal of Chiang et al. as taught by Katagishi et al. in order to improve to the design and ergonomics of the mobile terminal.

Consider **claim 18** and **as applied to claim 16 above**, Chiang et al. as modified by Katagashi et al. clearly show and disclose the terminal **100 (figure 1)** wherein the first antenna is a radiation-type antenna (**column 6 lines 49 –67**) and the second antenna is a reflection type antenna (**column 7 lines 3-10**).

Claims **17 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Katagishi et al. US Pat. Pub No.: 2004/0063476 A1** and in further view of **Bauregger et al. U.S. Patent Publication No.: 2003/0214443 A1**).

Consider **claim 17** and **as applied to claim 16 above**, Chiang et al. as modified by Katagishi et al. clearly show and disclose the claimed invention except terminal **100 (figure 1)** of claim 16, wherein the antenna has an inductive reactance.

However, in the same field of endeavor Bauregger et al. clearly show and disclose a antenna that has an inductive reactance (**paragraph 0034**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. and further modified by Katagashi et al. to include an inductive reactance as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Consider **claim 19** and as applied to **claim 16 above**, Chiang et al. as modified by Katagishi et al. clearly show and disclose the claimed invention except wherein the antenna is a microstrip patch-type.

However, in the same field of endeavor Bauregger et al. clearly show and disclose a antenna that is a microstrip patch-type (**abstract, paragraph 0026, claim 9**)

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. and further modified by Katagashi et al. to include a microstrip patch-type as taught by Bauregger et al. for the purpose of improving the properties of the antenna.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chiang et al. US Patent # 6,876,331 B2** in view of **Katagishi et al. US Pat. Pub No.: 2004/0063476 A1** and in further view of **Shiraki et al. U.S. Patent Pub No.: 2001/0024944**.

Consider **claim 20** and as applied to **claim 16 above**, Chiang et al. as modified by Katagishi et al. clearly disclose the claimed invention except wherein the second antenna has a length of at least $\lambda/2$.

However, in the same field of endeavor Shiraki et al. clearly show and disclose wherein the antenna has a length of at least $\lambda/2$ (**paragraphs 0006, 0033, and 0041**).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the antenna of Chiang et al. and further modified by Katagishi et al. to a length of at least $\lambda/2$ as taught by Shiraki et al. for the purpose of improving the antenna efficiency.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

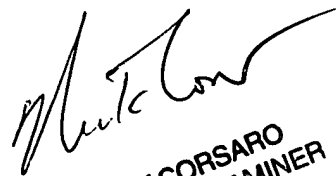
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Shedrick whose telephone number is (571)-272-8621. The examiner can normally be reached on Monday thru Friday 8:00AM-4:30PM.

Art Unit: 2687

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kincaid Lester can be reached on (571)-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Shedrick
AU 2617
March 16, 2006



NICK CORSARO
PRIMARY EXAMINER